WHAT IS CLAIMED IS:

1. A vibration meter for measuring a viscosity of a fluid flowing through a pipe, which vibration meter comprises:

- a transducer assembly
-- with at least one flow tube inserted into the pipe which
--- has a lumen conducting the fluid and
--- is clamped at an inlet end and an outlet end so as to be capable of vibratory motion,
-- with an electromechanical excitation arrangement for producing spatial deflections of the flow tube, and
-- with a sensor arrangement, responsive to lateral deflections of the flow tube,
--- for generating a first sensor signal, representative of an inlet-side deflection of the flow tube, and
--- for generating a second sensor signal, representative of an outlet-side deflection of the flow tube,
- the flow tube oscillating in operation relative to a position of rest at an adjustable excitation frequency to produce viscous friction in the fluid; and
- meter electronics
-- with an excitation circuit which generates an excitation current feeding the excitation arrangement, and
-- with an evaluating circuit
--- which derives from the first sensor signal and/or the second sensor signal and from the excitation current a viscosity value representative of the viscosity of the fluid.

2. A vibration meter as claimed in claim 1 wherein the evaluating circuit generates from the first sensor signal

and/or the second sensor signal an estimate of a velocity of a motion of the fluid, which causes viscous friction.

3. A vibration meter as claimed in claim 1 wherein the evaluating circuit generates from the excitation current a friction value representative of the viscous friction in the fluid.

4. A vibration meter as claimed in claims 2 and 3 wherein the evaluating circuit generates from the friction value and the estimate a quotient value representative of a damping of the oscillating flow tube caused by the viscous friction.

5. A vibration meter as claimed in claim 1 wherein elastic deformations of the lumen of the flow tube are caused by the spatial deflections of the flow tube.

6. A vibration meter as claimed in claim 5 wherein torsions are caused in the flow tube about a longitudinal axis by the spatial deflections of the flow tube.

7. A vibration meter as claimed in claim 1 which delivers a mass flow rate value X_m representative of an instantaneous mass flow rate of the fluid.

8. A vibration meter as claimed in claim 1 which delivers a density value X_ρ representative of an instantaneous density of the fluid.

9. A method of measuring a viscosity of a fluid flowing through a pipe using a vibration meter comprising:
- a transducer assembly
-- with at least one flow tube inserted into the pipe which in operation oscillates relative to a position of rest at an adjustable excitation frequency,

-- with an electromechanical excitation arrangement for producing spatial deflections of the flow tube, and
-- with a sensor arrangement, responsive to lateral deflections of the flow tube, for sensing an inlet-side and an outlet-side deflection of the flow tube; and

- meter electronics with
-- an excitation circuit which generates an excitation current feeding the excitation arrangement, and
-- an evaluating circuit,
- the vibration meter providing a density value, representative of a density of the fluid, and an excitation frequency value, representative of the excitation frequency,

said method comprising the steps of:

- generating vibrations of the flow tube at the excitation frequency to produce viscous friction in the fluid;
- sensing the excitation current feeding the excitation arrangement to generate a friction value representative of the viscous friction;
- sensing an inlet-side and/or an outlet-side deflection of the flow tube to generate an estimate representative of a velocity of a motion of the fluid, which causes the viscous friction;
- dividing the friction value by the estimate to obtain a quotient value representative of a damping of the oscillating flow tube caused by the viscous friction;
- deriving from the density value and the excitation frequency value a correction value dependent on the density of the fluid and on the excitation frequency; and
- deriving from the quotient value and the correction value a viscosity value representative of the viscosity of the fluid.

10. A method as claimed in claim 9 wherein the viscosity value is obtained by dividing the quotient value by the correction value.

11. A method as claimed in claim 9 wherein the viscosity value is obtained by squaring the quotient value.